Safe, Clean, Reliable Water Supply Act

LOAN application *for* groundwater recharge project construction

California Department of Water Resources
Division of Planning and Local Assistance
Division of Fiscal Services

June 1998

Introduction

The Safe, Clean, Reliable Water Supply Act *(Proposition 204)* authorizes the California Department of Water Resources to administer programs that issue low-interest loans to local agencies for groundwater recharge and water conservation project and facility construction.

Up to $5 million is available for each construction project. The interest rate for these loans will be equal to one-half the rate that the State pays on the general obligation bonds sold to finance the program.

This application is for local agencies seeking only a construction loan for a groundwater recharge project.

A separate application is to be used for applicants seeking a feasibility study loan. To request a feasibility study loan application, call DWR's San Joaquin District, Groundwater Section, at 559/230-3354.

The applicant initially should complete only Parts A and B on pages 9 to 21 of this application package and submit them to DWR to establish initial eligibility of the applicant and project. Once DWR establishes eligibility, the applicant will be notified to complete and submit the remainder of the application.

The applicant agency is responsible for repaying the construction loan. If the agency wishes to begin work before a contract is executed with DWR and obtain reimbursement for these costs, the agency must contact DWR at 916/327-1663 prior to incurring costs.

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Table of Contents *(cont.)*

General instructions

► Who can apply?
Local agencies are eligible for loans. A local agency is any city, county, city and county, district, joint powers authority, or other political subdivision of the State involved in water management.

► Eligible projects
Groundwater recharge facilities may include land and facilities for artificial groundwater recharge through methods including but not limited to either:

1. percolation using basins, pits, ditches, and furrows, modified streambeds and flooding;
2. well injection; or
3. in-lieu recharge.

Capital outlay expenditures to expand, renovate, or restructure land and facilities already in use for the purpose of groundwater recharge are also considered groundwater recharge facilities. Eligible reimbursable costs may include the purchase of land or easements but not the purchase of surface waters for use in-lieu of pumping groundwater.

► How to submit an application
The applicant initially will complete only Parts A and B on pages 9 to 21 of the application package and submit them to DWR for review.

DWR will use the information in Parts A and B of the application to establish initial applicant and project eligibility and ability to repay the loan. Once these are established, the applicant will be notified to complete the remaining parts of the application to establish the project's priority for funding. When DWR receives the remainder of the application *(Parts C through G on pages 22 to 35 and appropriate Appendixes)*, it will be placed into priority "B" and reviewed in the order received. DWR staff will request further information if the application is incomplete. All necessary information must be submitted before an application is considered complete.

► What happens after submitting the application?
DWR will evaluate the application based on the following criteria:

	Points
Engineering and hydrogeologic feasibility	35
Cost effectiveness	25
Overdraft reduction	20
Critical need for the project in the community	15
Consistency with applicable water management programs	5
Total	100

The proposed project must have a benefit-to-cost ratio equal to or greater than 1.0 for the project to be eligible for funding.

When an application is complete and has a minimum score of at least 70 points, DWR will move the project into priority "A." All priority "A" projects will immediately become eligible for funding.

► Help in completing the application
DWR needs specific information to evaluate your loan request. For help in completing the application:

Questions about Part A should be referred to:

Linda Buchanan Herzberg
Department of Water Resources
Division of Planning and Local Assistance
Sacramento
916/327-1663
Fax: 916/327-1648
E-mail: lbh@water.ca.gov

Questions regarding Parts B, C, D, F, and G should be referred to:

Gary Shanks
Groundwater Section
San Joaquin District
Department of Water Resources
Fresno
559/230-3354
Fax: 559/230-3301
E-mail: **gshanks@water.ca.gov**

Questions about Part E should be referred to:

Steve Cowdin
Division of Planning and
Local Assistance
Department of Water Resources
Sacramento
916/653-8166
Fax: 916/653-6077
E-mail: **scowdin@water.ca.gov**

► Submitting the application

The forms and attachments described in this booklet are required for a completed application. Appendix I on page 36 is a checklist of all the requirements for a completed application.

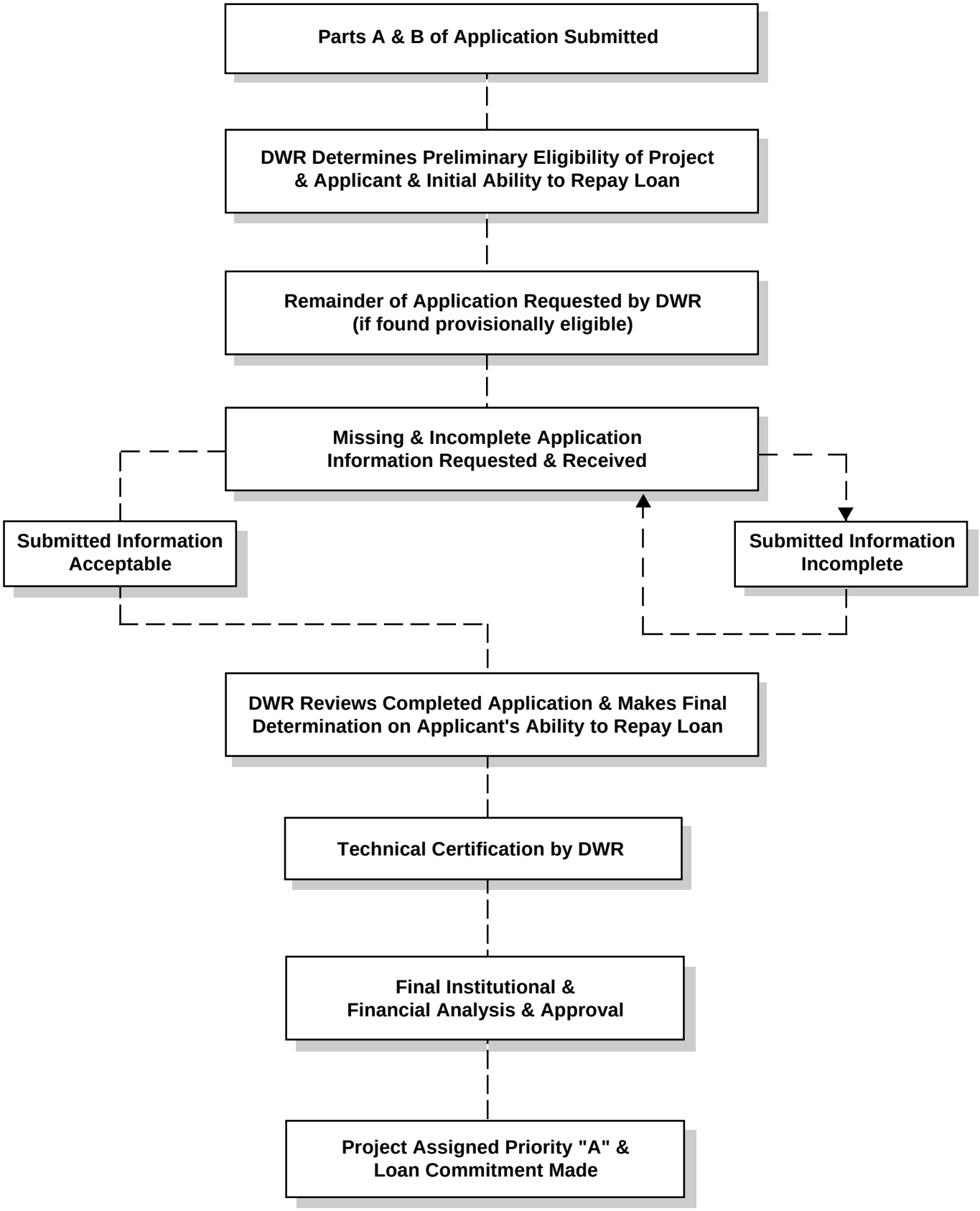
To establish initial eligibility, submit only Parts A and B of this application *(include any applicable attachments)*. Once provisional eligibility has been established, submit the remainder of the application at that time. See the notice on page 8.

Please submit three *(3)* copies of the application to:

Department of Water Resources
San Joaquin District
Groundwater Section
3374 East Shields Avenue
Fresno, California 93726

This application is for projects either ready for construction or nearing construction. If you do not have sufficient information to complete this construction loan application, consider applying for a feasibility study loan. To request a feasibility study loan application, contact DWR's San Joaquin District, Groundwater Section, at 559/230-3354.

Proposition 204 construction loan application process



Important!

Submit only Parts A & B of this application (*and applicable attachments*) to establish initial eligibility. If eligible, you will be notified to submit the remainder of the application.

Part A—Organizational, financial and legal information State of California, The Resources Agency, Department of Water Resources

A-1
Application cover sheet

Application for a construction loan for a groundwater recharge project under the Safe, Clean, Reliable Water Supply Act

The _____
(Exact legal name of agency applying for and repaying loan)

of _____
(Mailing address of agency)

_____

of the County of _____, State of California, does hereby apply to the California Department of Water Resources for a loan in the amount of $_____ for construction of the following project under the Safe, Clean, Reliable Water Supply Act:

_____
(Specify project title)

Requested repayment term is _____ years *(not to exceed 20 years)*.

By _____ Date _____
(Signature of authorized representative, see Section A-5 on page 14)

_____
(Print or type name of authorized representative)

Title _____

Telephone (_____)_____

Fax (_____)_____

E-mail _____

A-2
Agency representatives

Project contact person: Name _____

Title _____

Telephone (____)_____

Fax (____)_____

E-mail_____

Alternate contact person: Name _____

Title _____

Telephone (____)_____

Fax (____)_____

E-mail_____

Type of Organization: _____
(Water district, irrigation district, city, etc.)

California Assembly Representative: _____

District No. _____

California Senate Representative: _____

District No. _____

Attach a copy of agency charter and the names and titles of agency officers.

Mark as Attachment A-2.

A-3
Project cost

(1) Prepare a proposed project budget *(complete Attachment A-3 on page 12, "Project Budget—Capital Costs"; see Table A-3 on page 13 for a sample project budget; if additional details need to be provided, attach a separate page)*.

(2) Provide financing information about the proposed project *(see below)*.

Mark as Attachment A-3.

Total cost of project: $_____

Amount to be funded under the Safe, Clean, Reliable Water Supply Act: $_____

Requested repayment term: _____ *(Years)*

Amount to be funded by the agency: $ _____

Indicate agency's source of funds: _____

Amount to be funded externally: $ _____ *(Include any other pending applications)*

Lender: _____

Amount: $_____

Interest Rate: _____ Percent

Term: _____ Years

Annual Payment: $_____

Lender: _____

Amount: $_____

Interest Rate: _____ Percent

Term: _____ Years

Annual Payment: $_____

Attachment A-3
Project budget—capital costs

Capital Cost Category	Item Description	Who Will Perform Work?	Item Quantity	Unit Cost in Dollars	Extended Cost in Dollars	Contingency Cost @ 15%	Subtotals
Land Purchase/Easement							
Planning/Design/ Engineering							
Materials/Installation							
Structures							
Equipment Purchases/ Rentals							
Environmental Mitigation/ Enhancement							
PROJECT SUBTOTAL							
Construction Administration & Overhead							
Legal & License Fees							
Other							
TOTALS							

Table A-3
Sample project budget—capital costs

Capital Cost Category	Item Description	Who Will Perform Work?	Item Quantity	Unit Cost in Dollars	Extended Cost in Dollars	Contingency Cost @ 15%	Subtotals
Land Purchase/Easement	see item (5) under materials/installation						
Planning/Design/ Engineering	plans, specifications, inspection	staff	5%	$245,000	$245,000	$36,750	$281,750
Materials/Installation	(1) pipe canal (2) modify bridges (3) interties (4) recharge basin interconnections (5) new recharge basin (includes site purchase)	contractor contractor contractor contractor/staff	1 lump sum lump sum lump sum 1	$999,600 $35,672 $100,548 $1,057,126 $1,585,640	$999,600 $35,672 $100,548 $1,057,126 $1,585,640	$149,940 $5,351 $15,082 $58,569 $237,846	$1,149,540 $41,023 $115,630 $1,215,695 $1,823,486
Structures	not applicable						
Equipment Purchases/ Rentals	not applicable						
Environmental Mitigation/ Enhancement	not applicable						
PROJECT SUBTOTAL					$4,023,586	$603,538	$4,627,124
Construction Administration & Overhead	office work, meetings, CEQA	staff	5%	$4,627,124	$321,356	$34,703	$266,059
Legal & License Fees	technical certification, contracts	staff counsel	2%	$4,627,124	$92,542	$13,881	$106,423
Other	not applicable						
TOTALS					$4,347,484	$652,122	$4,999,606

A-4
Plat map of service area

Provide a plat map of the service area responsible for loan repayment, including a list of all property parcels affected by the debt. It may be an entire district or an assessment district.

Mark as Attachment A-4.

A-5
Authorizing resolution

Include a resolution adopted by the agency's governing body authorizing the application for groundwater recharge facilities loan under this program and designating a representative to sign the application. Appendix IV on page 45 is a sample resolution format.

Mark as Attachment A-5.

A-6
Financial statements

Attach copies of financial statements for the last three fiscal years of agency operation. Include balance sheets, income statements, sources and uses of funds statements, and the most recent annual budget. Please provide separate detail for the Water Enterprise Fund.

Mark as Attachment A-6.

A-7
Cash reserves

List all cash reserves *(restricted and unrestricted)* and any planned uses of those reserves.

Mark as Attachment A-7.

A-8
Existing debt

Summary of all existing agency long-term indebtedness, including bonds and any pending indebtedness *(e.g., US Department of Agriculture Rural Development loans or Economic Development Agency loans)*. If necessary, include additional pages.

Mark as Attachment A-8.

Lender:	**Lender:**	**Lender:**
Original Principal $_____	Original Principal $_____	Original Principal $_____
Purpose: _____	Purpose: _____	Purpose: _____
Original Date: _____	Original Date: _____	Original Date: _____
Original Terms:	Original Terms:	Original Terms:
Percent _____ Years _____	Percent _____ Years _____	Percent _____ Years _____
Annual Payment _____	Annual Payment _____	Annual Payment _____
Current Principal $_____	Current Principal $_____	Current Principal $_____
Remaining years to pay _____	Remaining years to pay _____	Remaining years to pay _____

Has this agency ever issued bonds or notes for debt? Yes ☐ No ☐
If yes, provide the following information for the two most recent issues:

Purpose	**Purpose**
(Check one) ❑ General Obligation ❑ Revenue Bond	*(Check one)* ❑ General Obligation ❑ Revenue Bond
Principal Amount $ _____	Principal Amount $ _____
Interest Rate True interest cost ☐ Net interest cost ☐	Interest Rate True interest cost ☐ Net interest cost ☐
Terms _____	Terms _____
Date of Issue _____	Date of Issue _____
Rating _____	Rating _____
Rating Agency _____	Rating Agency _____

How will the proposed DWR loan affect long-term and short-term financial capacity *(qualitatively/quantitatively)*? _____

_____

Current debt-to-income ratio: _____ *(Percent)* After proposed loan: _____ *(Percent)*

A-9
Repayment method

Indicate the agency's proposed method to repay the construction loan:

❑ 1. Standby charges
❑ 2. Excess revenues

Source:

_____

_____

❑ 3. Cost savings

❑ 4. User fees: ❑ Flat rate ❑ Quantity of water used

❑ 5. Assessments

❑ 6. Other *(describe)*:

_____

_____

If methods 1, 4, or 5 are to be used to repay the loan, include a plan to divide costs among the system users. Use dollar estimates.

Mark as Attachment A-9.

A-10
Loan security

Explain how the agency proposes to secure this loan if required to do so by the State *(dedicated revenues, assessments, etc.)*. Cite statutory authority to use this method to secure the loan.

_____

_____

_____

_____

Statutory Authority

_____

_____

Mark as Attachment A-10.

A-11
Rate and service structure

Attach the agency rate structure for the last three *(3)* years.

Mark as Attachment A-11.

Estimated average monthly water bill: _____

Residential Average month: _____	Agricultural Average month: _____ *(per acre-foot)*
Peak month: _____ 19_____	Peak month: _____ 19_____

Total possible nonagricultural connections in service area: _____

Number of undeveloped parcels in service area: _____

Number of developed residential parcels: _____

Number of developed commercial parcels: _____

Indicate the approximate number of actual connections for the date and year listed below:

Number of Connections

Year/Date	Residential	Other
12/31/Current Year (CY)		
12/31/CY + 1*		
12/31/CY + 2*		
12/31/CY + 3*		
12/31/CY + 4*		

* *Projections*

Volume of water delivered through system per year: _____

A-12
Population data *(not needed for agricultural projects)*

Total population of service area that will repay the loan:

Year-round/Permanent: _____ As of: _____
(Date)

Seasonal/Part-time: _____ As of: _____
(Date)

Seasonal peak population: _____ Persons per household: _____
(If applicable)

Source of information on population data:

_____

_____

Projected population:

Current Year + 5 _____ Current Year + 10 _____

Source of information on projected population:

_____

_____

Household median income of water service area: $_____

As of: _____
(Date)

Source of information on household median income:

_____

_____

What tax rate areas are included in the area to benefit from or pay for the project? *(This information is available from the county assessor.)*

_____

_____

County median income:
(Available from the county planning department)

$_____ As of: _____
(Date)

Source of information on county median income:

_____

_____

Mark as Attachment A-12.

A-13
Agency authority

Have the agency's attorney answer the following six questions pertaining specifically to this loan application. For each question, cite statutory authority or other references.

1. Does the agency have the legal authority to enter into a loan contract with the State of California, such as the proposed application? _____ Yes _____ No

   Cite the statutory authority under which the agency may borrow funds for the purpose, amount, and duration requested.

   _____

   _____

2. What is the statutory authority under which the agency was formed and is authorized to operate?

   _____

   _____

3. Is the agency required to hold an election before entering into a loan contract with the State? _____ Yes _____ No

   Cite the statutory authority or other references.

   _____

   _____

4. Does the agency have the legal authority to levy assessments and/or charges sufficient to repay the proposed State loan? *(Also address Loan security, Part A-10, page 16.)*
   _____ Yes _____ No

   Cite the statutory authority or other references.

   _____

   _____

5. Will a loan agreement between the agency and the State of California be subject to review and/or approval by other government agencies? _____ Yes _____ No

   Identify all such agencies *(e.g., Local Area Formation Commission, local governments, U.S. Forest Service, California Coastal Commission, Health Services, etc.)*.

   _____

   _____

6. Describe any pending litigation that impacts the financial condition of the agency or the operation of the water facilities. If none is pending, so state.

   _____

   _____

Mark as Attachment A-13.

Part B—Project description

B-1
Map and narrative description of project

Provide a detailed narrative description of the proposed groundwater recharge facility. Discuss the purpose of the project, and the project goals in the context of your agency's water management plans. If the project consists of multiple components, describe all of them and their relationship to one another. Identify which component*(s)* will be funded by the requested DWR loan. *(Preliminary plans and specifications are to be submitted at a later date; see Part C, Engineering and hydrogeologic feasibility, on pages 22 to 26.)*

Provide a detailed map of the project area, preferably a 1:24,000 scale copy or original of a 7.5-minute USGS quad sheet. Mark the location of the project components. On the map, identify the water source or conveyances from the source.

Mark the project description and map as Attachment B-1.

B-2
Legal description of project site

Provide a legal description of the project site, stating the location of the project *(including county, nearest city, section number(s), township, range, base, and meridian).* Include legal descriptions of beginning and ending points of the projects, if available and applicable.

Mark as Attachment B-2.

B-3
Timetable

Provide a timetable showing expected tasks and project completion. The timetable should show the start and end dates for the project milestones. The following tasks should be included on the timetable:

- develop financing
- design project
- acquire rights of way
- acquire water rights or water supply
- prepare environmental documentation *(e.g., California Environmental Quality Act)*
- acquire all necessary permits
- begin construction
- develop and implement environmental mitigation or enhancement

The timetable should preferably be in a horizontal bar chart format. Tasks may overlap.

NOTE: If the proposed project is to be phased, expand the project timetable to include all of the necessary information for each phase.

Mark as Attachment B-3.

Part C—Engineering and hydrogeologic feasibility

The facility must be feasible from a hydrogeologic standpoint. "Hydrogeologic feasibility" means a determination by a registered geologist that water placed in the groundwater recharge facility will percolate to or be injected into the aquifer intended to be recharged, and that the water quality of the recharge water is compatible with that of the intended aquifer.

For in-lieu groundwater recharge projects, "hydrogeologic feasibility" means a determination by a registered geologist that the proposed project operation will result in recharge of the aquifer.

The facility must be feasible from an engineering standpoint. "Engineering feasibility" means that the proposed project can be designed, constructed, and operated to accomplish the purposes for which it is planned, and is planned in accordance with generally accepted engineering and environmental principles and concepts. Hydrologic studies and information on water rights and the sufficiency of water supply are essential to the determination of engineering feasibility.

The information requested in Sections C-1 through C-8 will be used by DWR to confirm that the proposed groundwater recharge facility is feasible from a hydrogeologic and engineering standpoint.

C-1
Certification statements

Certification statements regarding project feasibility must be signed by a California registered geologist and a California registered civil engineer working on this project. The statements are found in Appendix II on pages 37 and 38. Cite the references *(such as feasibility studies, engineering design studies, hydrologic studies and water rights permits, or contracts)* used to determine feasibility.

Mark certification statements and citation of reference sources as Attachment C-1.

C-2
Water source

Identify the source of water to be used from groundwater recharge. Attach documentation showing that you have water rights, a contract, or an agreement for use of the water proposed for recharge. Water rights documentation should include a description of the type, duration, quantity, and date when water rights were obtained. If you have any questions concerning your water rights, contact the State Water Resources Control Board, Division of Water Rights, at 916/657-2170.

If water is to be acquired through a purchase contract or other agreement, the contract period and terms of the contract must be clearly described and a copy of the agreement included in Attachment C-2.

Mark as Attachment C-2.

C-3
Water availability

Calculate the volume of water available to the groundwater recharge facility for each year during the life of the project. The life of the project is assumed to be 50 years. Hydrologic data from the last 50 years should be used when available to calculate the amount of water available to the project. Cite the source of the data. If this data is not available, applicants should synthesize data for

the last 50 years, using a technically acceptable hydrologic synthesis technique. *(In your application, discuss the methods and assumptions used to synthesize this data.)*

If water is to be conveyed to the project through a pipeline or canal used for another purpose, demonstrate that conveyance capacity exists for operation of the groundwater recharge facility as proposed in this application.

Calculate and incorporate other losses between the water source diversion and the groundwater recharge facility such as conveyance losses and evaporation.

NOTE: Complete Table C-3, titled "Project recharge and extraction budget," on pages 25 and 26.

In Table C-3, for direct recharge projects, enter acre-feet of water recharged per year in column (a). For in-lieu projects, enter estimates of surface deliveries in column (b). For both types of projects, enter project water extracted in column (d), and enter calculated net recharge in column (e). While it is possible that during any given year extractions could exceed recharge, at no time may extractions exceed the cumulative net recharge up to that point in time.

If supply water for the project is to be purchased or acquired through an agreement with another entity, the projected average annual supply of purchased water *(minus conveyance losses)* should be entered into row (a) of Table 1 "Project performance" in Appendix III on page 39. If project operations *(recharge or extraction)* will vary year-to-year, then use Table C-3, "Project recharge and extraction budget."

Mark the water availability analysis (including discussion of methods and assumptions and Table C-3) as Attachment C-3.

C-4
Aquifer parameters

Identify and describe the groundwater basin that will be recharged by this facility. Provide the following information.

1. Show the areal extent of the groundwater basin on a map of appropriate scale and show the depth of the basin and location of the aquifer in a cross section diagram.

2. Describe the geology of the aquifer.

3. On a map, show where the water recharged by this facility will be stored and locate the significant wells.

4. Provide the depth to groundwater in the basin and the depth at the site of the proposed groundwater recharge facility.

5. Provide the specific yield of the aquifer and the volume of storage space available for recharge.

6. Predict the maximum and long-term *(rate during a period of average water supply)* rates of groundwater recharge of the proposed facility, in acre-feet per day.

7. Provide the value for transmissivity in the aquifer and predict the time it will take for water to reach the nearest well from the time it is placed in the recharge facility.

8. Using the information developed in this section, show that the facility can recharge the volume of water available *(the amount described in Sections C-2 and C-3)*.

9. Provide the volume of groundwater used annually within the boundaries of the applicant agency, or service area of the proposed project.

10. Quantify and discuss the yields typically provided by wells in the subject groundwater basin.

Mark the description of recharge and aquifer characteristics as Attachment C-4.

C-5
Water quality

Will the source water adversely impact the quality of the groundwater? If the aquifer is a drinking water source, show that the recharge water is drinking water quality.

Will changes in the aquifer occur due to the use of the designated source as recharge water? Consider factors such as reduction of infiltration rates, chemical precipitation of solids, and growth of algae and bacterial biomass. Use water quality analyses of the source and intended aquifer to document your answer to this question.

Is treatment of the source water required before recharge? If so, describe the required treatment.

Mark as Attachment C-5.

C-6
Project reports

List all reports prepared for this proposed groundwater recharge facility. If a feasibility study has not been completed for the project, explain what has been done to determine the project's feasibility.

Mark as Attachment C-6.

C-7
Preliminary project plans and specifications

Provide a copy of preliminary project plans indicating type of construction, types and quantities of materials, dimensions, cross-sectional drawings, profile drawings, location, elevation *(if available)*, planned mitigation measures *(if required)*, and other appropriate features. The preliminary plans need to be at least a 30-percent plan drawing. Provide a copy of preliminary project specifications, including citations of all standards used and all applicable health and safety specifications.

DWR recommends that a California registered civil engineer prepare the preliminary plans and specifications. A California registered civil engineer must prepare and sign the final plans and specifications. Each final plan sheet and the cover sheet of the final specifications must be signed and stamped by a California registered civil engineer.

Mark the preliminary plans and specifications as Attachment C-7.

C-8
Construction inspection plan

Provide a detailed construction inspection plan describing who will inspect the site and project before, during, and after construction, and when inspections will be made.

Mark as Attachment C-8.

Table C-3

Project recharge and extraction budget

Year	Direct Recharge (AF) (a)	Surface Water Deliveries for In-Lieu Recharge (AF) (b)	Total Recharge (AF) (c) *(a + b)*	Project Extraction (AF) (d)	Net Project Recharge (AF) (e) *(c - d)*
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Table C-3 (continued)

Project recharge and extraction budget

Year	Direct Recharge (AF) (a)	Surface Water Deliveries for In-Lieu Recharge (AF) (b)	Total Recharge (AF) (c) *(a + b)*	Project Extraction (AF) (d)	Net Project Recharge (AF) (e) *(c - d)*
26					
27					
28					
29					
30					
31					
32					
33					
34					
35					
36					
37					
38					
39					
40					
41					
42					
43					
44					
45					
46					
47					
48					
49					
50					
Average Annual Amounts (AF) (1)					

(1) Insert values into Table 1—Project Performance in Appendix III on page 39.

Part D—Overdraft

For the purpose of this application, "overdraft" means that groundwater is being extracted from a basin at a long-term average rate greater than the long-term average recharge from natural and artificial sources, and that continuation of present water management practices would probably result in significant adverse overdraft-related environmental, social and/or economic impacts.

The information you provide in Sections D-1, D-2, and D-3 will be used to evaluate the likely effect the proposed groundwater recharge facility will have on overdraft conditions.

D-1
Water level trends

Provide groundwater level maps showing how groundwater storage in the basin served by the proposed facility has changed over time. If maps are not available, attach hydrographs of wells that are representative of water level trends. Discuss the trends shown by these records.

Mark water level trends as Attachment D-1.

D-2
Overdraft reduction

Determine the overdraft reduction that will result from operation the proposed groundwater recharge facility over the 50-year life of the project.

Mark overdraft reduction determination as Attachment D-2.

D-3
Problems resulting from overdraft

Describe problems in the groundwater basin to be served by the proposed facility that are a result of overdraft. Consider subsidence, salt water intrusion, and other water quality problems. Describe how the proposed facility will help mitigate those problems.

Mark overdraft problem discussion as Attachment D-3.

Part E—Economic justification

Part E evaluates the economic benefits and costs of groundwater recharge projects. Tables 1 through 8 in Appendix III on pages 39 to 43 enable the applicant to develop a benefit/cost ratio over a 50-year analysis period. Table 1 summarizes the project's performance *(total average annual direct recharge, in-lieu recharge, total recharge; extractions and net recharge)*; Tables 2 through 4 summarize the project's capital and operations and maintenance *(O&M)* costs; Table 5 computes the project's water supply benefits using three possible methods; Table 6 computes lift benefits; Table 7 computes avoided pumping costs for in-lieu recharge; and Table 8 computes the B/C ratio. For projects to be considered cost-effective, the B/C ratio must be equal to or greater than 1.00 *(i.e., a project's benefits must be equal to or greater than its costs)*. Figure E-1 on page 29 presents a flowchart illustrating the relationships of all of the above tables to each other.

E-1
Analysis assumptions

Applicants must use the following assumptions in determining the benefits and costs for the proposed project:

- **Period of analysis.** The economic evaluation will be based on a 50-year analysis period. Because of discounting, B/C ratios will not be significantly affected if projects have useful lives greater than 50 years. Conversely, if projects have useful lives less than 50 years, this can be accounted for by including replacement costs *(discussed below)*.

- **Inflation and escalation.** For ease of analysis, applicants will assume zero future inflation and escalation of costs.

- **Discount rate.** Because benefits and costs are evaluated over a 50-year period, they must be discounted to reflect the value of money over time *(a dollar received today is worth more than one received in the future)*. DWR uses a 6-percent discount rate.

- **Dollar value base year.** All benefits and costs will be expressed in current year dollars *(please indicate year)*. If dollar estimates are only available for prior years, the following table can be used to update these costs to 1997 estimated price levels using the California Consumer Price Index for all urban consumers. The following table shows the C.P.I. for the years 1990 through 1997, along with the update factor. For example, using the 1990 update factor of 1.19 from this table, $1,000 reported in 1990 dollars would be equivalent to $1,190 in 1997 dollars. If you need to update costs to years following 1997, please contact Steve Cowdin of DWR at 916/653-8166 to obtain latest update factors.

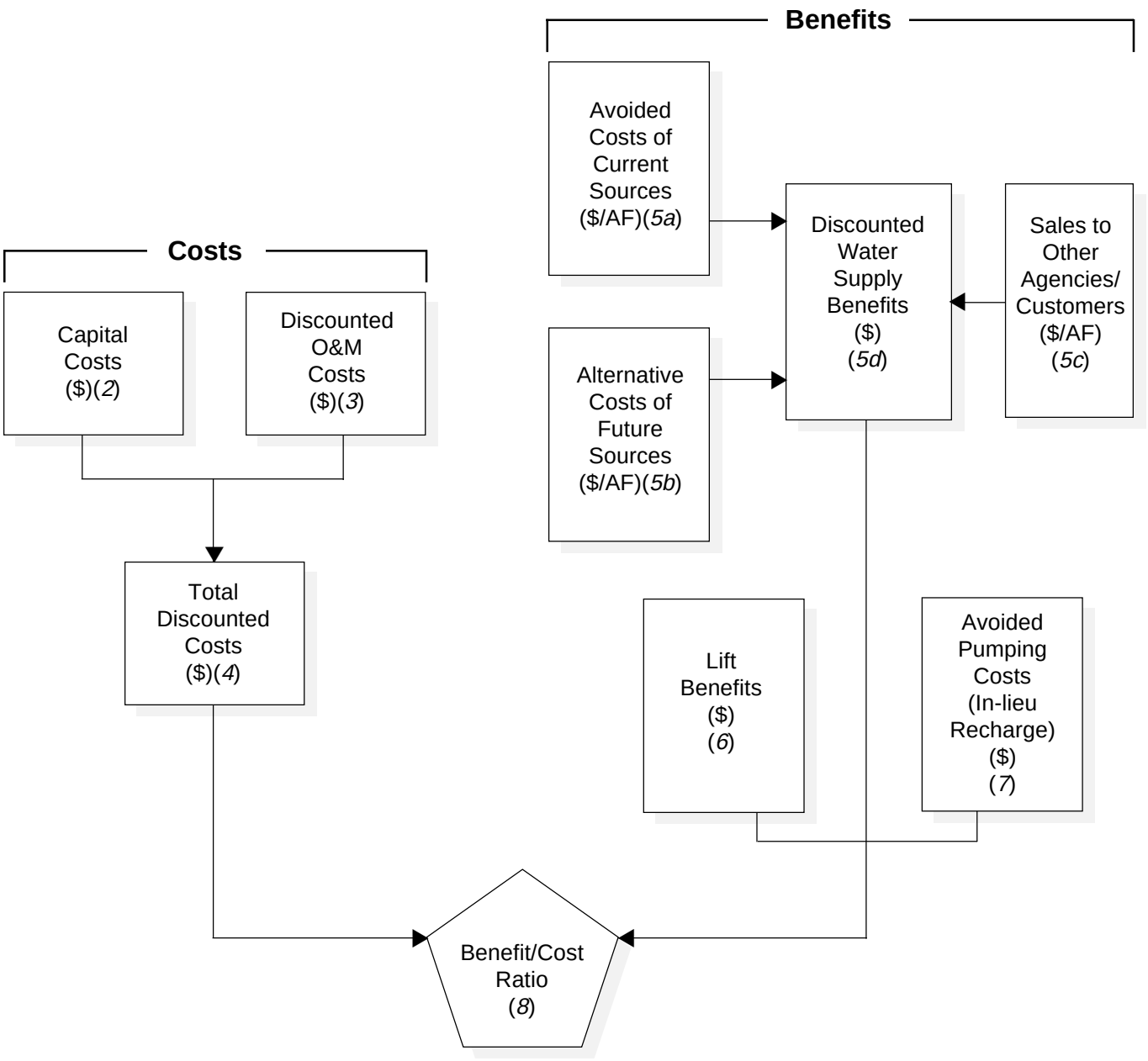
- **Multiple-funded projects.** The economic analysis will be conducted for the entire project, regardless of funding sources. All project costs *(capital and O&M)* must be included included in the economic analysis, even if the requested State loan only funds part of the project.

Year	California C.P.I. *(1)*	Update Factor
1990	135.0	1.19
1991	140.6	1.14
1992	145.6	1.10
1993	149.4	1.07
1994	151.5	1.06
1995	154.0	1.04
1996	157.1	1.02
1997	160.5	1.00

(1) Source: California Department of Finance

Figure E-1

Groundwater recharge benefit/cost analysis



Numbers in parentheses indicate Table in Appendix III (pages 39 to 43) where the applicable estimated values must be entered.

► **Groundwater recharge facility/basin characteristics.** Several simplifying assumptions are made concerning the physical characteristics of the recharge facility as it relates to the groundwater basin. These include: (a) recharge results in a water table rise in the year that water is placed in the recharge facility; (b) recharge is evenly distributed and remains in the local agency's boundaries, or project groundwater basin, whichever is smaller; (c) the aquifer's storage coefficient is homogenous within the project groundwater basin; (d) the depth to groundwater is equal throughout the project basin.

Following are instructions for completing Tables 1 through 8 *(pages 39 to 43)*. These tables assume that the project's benefits and costs are relatively constant from one year to the next over the analysis period. However, if project benefits and costs are expected to vary greatly over the analysis period, or if there is a demand build-up which could affect these values, then you may wish to use another set of tables which analyze benefits and costs for each year of the analysis period *(the "long form" approach)*. These other tables may be obtained from Steve Cowdin at 916/653-8166. All economic analysis tables in this application are available in spreadsheet form *(using EXCEL, QUATTRO PRO, or LOTUS)* for use with most IBM-compatible computers; call Steve Cowdin for details.

E-2—Project performance

Table 1 shows the expected total average annual water direct recharge, in-lieu recharge, total recharge, extractions, and net recharge to be realized from the project. These numbers should match the information developed in Section C-3 on page 22.

Mark the table as Attachment E-2.

E-3—Project costs

Project costs usually include capital *(construction)* and annual operations and maintenance *(O&M)* costs. Although some project costs are not fundable under this program, all costs required to achieve project benefits must be included in the economic evaluation. If the project consists of multiple components, include all of them in the project budget.

Table 2 shows the capital costs required to plan and construct the project. Although capital costs can be spread over more than one year, Table 2 assumes that all capital costs are incurred in one year. In Table 2, enter costs for the following categories in column (b):

► Land Purchase/Easement
► Planning/Design/Engineering
► Materials/Installation
► Structures
► Equipment Purchases/Rentals
► Environmental Mitigation/Enhancement
► Construction Administration/Overhead
► Project Legal/License Fees
► Other

Table 2 includes allowances for a 15-percent contingency cost to be computed in column (d) for each of the above categories. Capital costs and associated contingency costs are added together in column (e); column (e) is then summed to a Total near the bottom of the table. This total must match the Project Budget prepared in section A-3.

NOTE: Table 2 excludes financial costs, such as interest costs during construction and long-term debt service costs.

Table 3 summarizes annual operations and maintenance costs incurred once the project begins operations. These may include administration, column (a); operations, column (b); maintenance, column (c); water purchases, column (d); extraction, whether

incurred by the local agency or private individuals, column (e); and "other" costs, column (f). If a major component of the project requires replacement before the end of the 50-year analysis period, then annual replacement costs should be included in the "other" category. Column (g) computes total annual O&M costs, which is then multiplied by the factor of 15.7 to obtain total discounted O&M costs over the analysis period, column (h).

Table 4 computes the total discounted costs of the project over the analysis period by combining capital costs, column (a), with the total discounted O&M costs, column (b), and placing the sum into column (c).

Mark the tables at Attachment E-3.

E-4—Project benefits

The primary types of benefits associated with groundwater recharge projects are water supply, lift, and avoided pumping costs *(the latter is limited to in-lieu projects only)*. Typically, water supply benefits are the greatest of these benefits.

Water supply benefits occur when recharged supplies are extracted and put to beneficial use. Water supply benefits are computed in Table 5. The value of the project's water supply is determined by how the water will be used. If the applicant has enough water supplies for the foreseeable future, then the water delivered by the project will allow that agency to reduce the amount of water purchased, diverted or pumped from its most expensive current water supply source. However, if the applicant needs to augment water supplies to meet future demands, then the value to the water agency is measured by the least-cost alternative that may be eliminated or delayed because of the project. Finally, if the applicant plans to sell all or part of the project water to existing customers, new customers or other agencies, then the value of the project water can be measured by the expected price for which it is sold, thus generating revenue.

Tables 5a, 5b, and 5c allow the applicant to compute three types of water supply benefits that might result from the project. From these three types of water supply benefits (*listed below)*, the applicant will need to determine the one that is the most appropriate for the proposed project.

Table 5a—For applicants with sufficient water supplies, Table 5a is completed by showing the current major sources of supply available to the agency, column (a), along with the cost/acre-feet of obtaining water from these sources, column (b). The most expensive source*(s)* are then chosen as the benefit measure, as these will be the likely sources from which supplies will be reduced as a result of the project.

Table 5b—For applicants needing to augment current supplies, Table 5b is completed to identify the least-cost alternative that may be delayed or eliminated as a result of the project. The name of the alternative*(s)* is entered into column (a), and its associated capital costs are entered into column (b). Column (b) is multiplied by the capital recovery factor in column(c) to obtain annual capital costs, column (d), to which are added annual O&M costs, column (e), to obtain total annual costs, column (f). Dividing the total annual costs by the total annual supply in column (g) results in the annual cost/af for the alternative*(s)* in column (h).

Table 5c—Finally, if the applicant plans on selling all or part of the conserved water supply, Table 5c is used; column (a) lists the parties that may be potentially buying project supples, column (b) lists the amount of water to be sold to each, and column (c) shows the projected selling price. However, depending upon hydrologic conditions, it is very likely that these water sales may not occur every year over the analysis period. In column (d),

enter the expected frequency of sales as a percentage. For example, if sales are only expected to occur about half of the years, then .50 is entered in column (d). This percentage is then used to "adjust" the selling price in column (e) to obtain actual sales revenue $/AF. *(In reality, the selling price is not changing. However, a mathematical "adjustment" is required to account for sales not occurring every year.)*

Finally, if the applicant is likely to receive an "option fee" from the purchasing agency, then this is shown in column (f). *(An option fee is sometimes paid by a contracting agency to a selling agency to maintain the right of the contracting agency to buy water whenever needed. Although the water may not be purchased every year, the fee is usually paid every year.)* The option fee is then added to the actual sales revenue to obtain the final expected revenue *($/AF)* that can be realized from selling the water, column (g).

Table 5d computes a total discounted water supply benefit over the analysis period by taking the benefit value *($/AF)* from either Table 5a, 5b or 5c, and multiplying it by the average annual extraction to obtain total average annual water supply benefits. Total average annual water supply benefits are then multiplied by a factor of 15.7 to obtain total discounted water supply benefits over the analysis period.

Lift benefits are the reduced pumping costs *(and avoided well deepening costs)* accruing to all pumpers in the project area affected by the recharge project. Lift benefits can be claimed if recharged water remains underground after the quantities claimed for water supply benefits are extracted *(in other words, the project results in a positive net recharge)*. As extraction increases, lift benefits decrease.

Table 6 computes total discounted lift benefits, assuming that a project's cumulative recharge increases by the average annual net recharge *(from Table 1)* each year of the 50-year analysis period. Some recharge projects are operated so that the cumulative net recharge is zero for the 50th year. For these specific projects, Table 6 would yield a lift benefit of zero. For applicants wishing to compute lift benefits on a year-by-year basis, then the "long form" tables discussed above should be used.

Information needed to complete Table 6 includes:

- average annual net recharge, obtained from Table 1,
- the area overlying the project's groundwater basin,
- pumping costs, or the cost of pumping 1 acre-foot of water over 1 foot of head, and
- the volume pumped by all pumpers in the area cited above, excluding those that will be receiving in-lieu deliveries from the project.

Avoided pumping costs can occur if current users of groundwater will receive in-lieu surface supplies from the project, thereby eliminating them as groundwater users. If this occurs, then these users will avoid having to pay groundwater pumping costs.

Table 7 computes total discounted avoided pumping costs over the analysis period. Information needed to complete Table 7 includes:

- average annual in-lieu recharge, obtained from Table 1,
- depth to groundwater *(use a representative depth to groundwater within the project area)*, and

► pumping costs, or the cost of pumping 1 acre-foot of water over 1 foot of head.

Mark the tables as Attachment E-4.

E-5
Benefit/cost ratio

Table 8 computes the B/C ratio from information developed in Tables 1 through 7. Total discounted water supply, lift and/or avoided pumping cost benefits are entered in rows (a) through (c). These benefits were developed in Tables 5 through 7. Total discounted project costs, from Table 4, are entered in row (e). Dividing the project's total discounted benefits by its total discounted costs results in the B/C ratio in row (f), which must be equal to or greater than 1.00 for the project to be considered cost effective.

Mark the table as Attachment E-5.

Part F—Critical need

"Critical need" is the same as "urgency of need" and means physical and financial need for the project in the community. Physical need is determined by the general state of the water system, dependency on the water supply, water quality conditions, and the availability of substitute supplies. Financial need is demonstrated by the applicant's fiscal status and its inability to fund the project from other sources, as determined in Part A of the application.

Critical need will be assessed using information supplied in this section, in addition to that received in Part A *(Organizational, financial, and legal information)*.

F-1
Physical need for the proposed project and relation to other water facilities in region

Include a detailed narrative description of the current water system conditions. Describe the agency's current sources of water, including substitute supplies and existing facilities. Also describe current and projected water needs. Describe how the proposed groundwater recharge facility will meet those needs.

Mark as Attachment F-1.

F-2
Impacts of not constructing the proposed project

Include a detailed narrative description of the expected impacts within the community if the proposed groundwater recharge facility is not constructed. Factors impacted could include population, employment, business and industry, irrigated acreage, emergency supplies, water quality, agency loss or gain of revenue, public safety, agricultural conversion to urban water uses, and the environment.

Mark as Attachment F-2.

Part G— Environmental documentation

The environmental, social, and economic impacts of the proposed project should be discussed in detail in the environmental documents required under the California Environmental Quality Act *(CEQA)* and the National Environmental Policy Act *(NEPA)*.

The environmental documents must identify all of the anticipated adverse impacts associated with project construction and provide a plan to avoid or mitigate these impacts. The purpose of this section is not to reanalyze the environmental documentation supporting the proposed project but rather to identify critical constraints to implementing the project in a timely manner.

Environmental issues are often complex and sometimes require considerable time and expense to resolve adequately. **Any and all environmental documentation, including environmental impact reports, environmental impact statements, negative declarations, permits, and mitigation agreements must be completed before any loans can be approved by DWR.** For this reason, the local agency needs to determine if any issues exist which represent significant obstacles to implementing a proposed project.

G-1
California Environmental Quality Act and National Environmental Policy Act

Under the California Environmental Quality Act *(for the purposes of this program)*, DWR is to be the "responsible agency" and the local agency is the "lead agency" for the proposed project. Before DWR can approve a loan for a project, the project's CEQA documentation must have circulated through the state clearinghouse process, and a Final Notice of Determination must be recorded and filed with the local County Clerk, in the county where the project is located. A letter must be obtained from the agency's legal counsel which states that no legal challenges or protests were filed against the Negative Declaration or EIR during the 30-day Statute of Limitations period following the posting of the Notice of Determination.

For complete information on the CEQA process, you may obtain a copy of the California State Clearinghouse Handbook from the State of California, Governor's Office, Office of Planning and Research, at 1400 Tenth Street, Sacramento, CA 95814, or by calling 916/445-0613.

To initiate the CEQA process, the agency must prepare an initial study, and then prepare either an EIR or a negative declaration. DWR must receive a copy of the Draft EIR so DWR's comments can be incorporated into the Final EIR, if the CEQA process has not gone past this point. Negative declarations must describe adequately why the project will not have adverse environmental impacts. Negative declarations need to include descriptions of specific mitigation measures that will reduce the environmental impacts of the proposed project. Since major construction projects may have a significant effect on the environment, DWR generally will not accept categorical exemptions.

Under CEQA, an agency must consult with all other government agencies having an interest in or responsibility for the project, the site, or the possible impacts of the project. DWR suggests contacting the California Department of Fish and Game and other local, State, and/or federal agencies early in the CEQA process. If the U.S. Fish and Wildlife Service or the Department of Fish and Game request a Fish and Wildlife Agreement

for the proposed project, signed copies of the agreement need to be included in the CEQA/NEPA documentation and will be referenced in the DWR contract for the loan.

If the CEQA process for the project is not complete, the local agency must provide a descriptive plan and timetable showing the steps taken to complete the CEQA-related documents. If the proposed project is within federal jurisdiction, the project may be subject to NEPA. In this case, also provide copies of all NEPA-related documents.

Complete the attached Environmental Impact Checklist in Appendix V on pages 46 to 51 using available information. If an Initial Study already has been prepared, provide a copy of the checklist accompanying that document.

Mark environmental documentation and Appendix V as Attachment G-1.

G-2
Demonstration of community support and/or opposition

Submit copies of any letters from local environmental organizations, community groups, political bodies, as well as newspaper articles demonstrating support for the proposed project.

Describe any opposition to the proposed project. Identity the party*(ies)* in opposition, and briefly discuss the situation.

Mark as Attachment G-2.

G-3
Permits, easements, acquisitions, certifications

List and include copies of all required permits, easement rights, land acquisitions, and certification of approvals of federal, State, and local agencies. If the project requires Section 404 permits, or streambed alteration permits, address this in the CEQA/NEPA process. All environmental documentation must be obtained prior to contract execution.

"Environmental documentation" means written documentation prepared in compliance with all applicable laws and guidelines related to the protection of the environment and resources of the State, including but not limited to CEQA, NEPA, the federal Clean Water Act, the California Fish and Game Code, the California Endangered Species Act, and the federal Endangered Species Act. *(See Appendix VI on pages 53 to 56 for a list of possible required permits.)*

If the project will involve or impact a reservoir or dam of any dimension, provide a copy of the DWR Safety of Dams Certificate of Approval or a Statement of Exemption. If you have questions on dam safety, call DWR's Division of Safety of Dams at 916/445-7606.

Submit a plan and schedule for obtaining permits required for the project.

Mark as Attachment G-3.

G-4
Water conservation program

Describe the agency's water conservation management plan and the best management practices *(BMPs)* it entails *(attach copy)*. For questions on water conservation plans and BMPs, contact Ed Craddock at DWR at 916/327-1655.

Mark as Attachment G-4.

Appendix I

Checklist of attachments

Complete this checklist to confirm all sections and attachments to this application package have been completed.

Part A

_____ A-1 Application cover sheet
_____ A-2 Agency representatives
_____ A-3 Project cost
_____ A-4 Plat map of service area
_____ A-5 Authorizing resolution
_____ A-6 Financial statements
_____ A-7 Cash reserves
_____ A-8 Existing debt
_____ A-9 Repayment method
_____ A-10 Loan security
_____ A-11 Rate and service structure
_____ A-12 Population data
_____ A-13 Agency authority

Part B

_____ B-1 Map and narrative description of project
_____ B-2 Legal description of project site
_____ B-3 Project timetable

Part C

_____ C-1 Engineering feasibility certification statement *(Appendix II)*
_____ Hydrogeologic feasibility certification statement *(Appendix II)*
_____ C-2 Water source
_____ C-3 Water availability
_____ Citation of data source, or discussion of hydrologic data synthesis
_____ Project recharge and extraction budget *(Table C-3)*
_____ C-4 Aquifer parameters
_____ C-5 Water quality
_____ C-6 Project reports *(list of previous studies)*
_____ C-7 Preliminary project plans and specifications
_____ C-8 Construction inspection plan

Part D

_____ D-1 Water level trends
_____ D-2 Overdraft reduction
_____ D-3 Problems resulting from overdraft

Part E

_____ E-1 Analysis assumptions
_____ E-2 Project performance *(Appendix III, Table 1)*
_____ E-3 Project costs *(Appendix III, Tables 2, 3, and 4)*
_____ E-4 Project benefits *(Appendix III, Tables 5a, 5b, 5c, 6, and 7)*
_____ E-5 Benefit/cost ratio *(Appendix III, Table 8)*

Part F

_____ F-1 Physical need for the proposed project and relation to other water facilities in region
_____ F-2 Impacts of not constructing the proposed project

Part G

_____ G-1 CEQA/NEPA documentation *(Appendix V)*
_____ G-2 Demonstration of community support and/or opposition
_____ G-3 Permits, easements, acquisitions, certifications *(Appendix VI)*
_____ G-4 Water conservation program

Appendix II

Certification statements

Engineering feasibility statement

I, _____, California registered civil engineer, have reviewed the information presented in support of this application. Based on this information, and any other knowledge I have regarding the proposed project, I find that it can be designed, constructed, and operated to accomplish the purpose for which it is planned. There is a sufficient water supply for the project. The information I have reviewed to document this statement is included *(provide list, e.g., feasibility studies, engineering design studies, water rights permits, etc.)*.

_____

(Signature and stamp with expiration date)

Appendix II

Certification statements *(continued)*

Hydrogeologic feasibility statement

I, _____, California registered geologist, have reviewed the information presented in support of this application. *(Check the description below that applies to the proposed project; also list information reviewed, e.g., feasibility studies, water rights permits, data reports, chemical analysis of recharge water and aquifer water, etc.).*

❑ This facility will recharge water directly into the ground, and I find that water placed in the groundwater recharge facility will percolate to or be injected into the aquifer intended to be recharged. Based on the data available for review, I also find that the water quality of the recharge water is compatible with that of the intended aquifer.

❑ This is an in-lieu groundwater recharge project, and I find that the proposed project will result in recharge of the intended aquifer. The information I have reviewed to document this statement is included.

_____

(Signature and stamp with expiration date)

Appendix III

Benefit/cost analysis—groundwater recharge

Table 1—Project performance

(a)	Average Annual Direct Recharge (AF) (1)	
(b)	Average Annual In-Lieu Recharge (AF)	
(c)	Average Annual Total Recharge (AF) *(a + b)*	
(d)	Average Annual Extractions (AF)	
(e)	Average Annual Net Recharge (AF) *(c - d)*	

(1) All of these numbers are from Section C-3.

Table 2—Capital costs

	Capital Cost Category (a)	Cost (b)	Contingency Costs Percent (c)	 Dollars (d) *(b x c)*	Subtotal (e) *(b + d)*
(a)	Land Purchase/Easement		0.15		
(b)	Planning/Design/Engineering		0.15		
(c)	Materials/Installation		0.15		
(d)	Structures		0.15		
(e)	Equipment Purchases/Rentals		0.15		
(f)	Environmental Mitigation/ Enhancement		0.15		
(g)	Construction Administration/ Overhead		0.15		
(h)	Project Legal/License Fees		0.15		
(i)	Other		0.15		
(j)	Total (1) *(a + ... + i)*				

(1) Must match Project Budget prepared in Section A-3.

Table 3—Annual operations and maintenance costs

Annual Administration (a)	Annual Operations (b)	Annual Maintenance (c)	Annual Water Purchases (d)	Annual Extractions (1) (e)	Annual Other (f)	Total Annual O&M Costs (g) *(a +...+ f)*	Total Discounted O&M Costs (2) (h) *(g x 15.7)*

(1) Agency and/or customer costs to withdraw water from groundwater basin.
(2) Total percent value of O&M costs over a 50-year period with discount rate of 6 percent.

Table 4—Total cost summary

Capital Costs (1) (a)	Discounted O&M Costs (2) (b)	Total Discounted Costs (c) *(a + b)*

(1) From Table 2, row (j).
(2) From Table 3, column (h).

Table 5—Water supply benefits

5a—Avoided costs of current supply sources

Supply Sources (a)	Cost of Water ($/AF) (b)

5b—Alternative costs of future supply sources

Future Supply Sources (a)	Total Capital Costs ($) (b)	Capital Recovery Factor (1) (c)	Annual Capital Costs ($) (d) *(b x c)*	Annual O & M Costs ($) (e)	Total Annual Costs ($) (f) *(d + e)*	Annual Supply (AF) (g)	Annual Cost ($/AF) (h) *(f / g)*
		.0634					
		.0634					
		.0634					
		.0634					
		.0634					

(1) 6 percent discount rate; 50 years.

5c—Water sales revenue *(vendibility)*

Parties Purchasing Project Supplies (a)	Amount of Water to be Sold (1) (AF) (b)	Projected Selling Price ($/AF) (c)	Expected Frequency of Sales (2) (%) (d)	Actual Sales Revenue ($/AF) (e) *(c x d)*	"Option" Fee (3) ($/AF) (f)	Total Sales Revenue ($/AF) (g) *(e + f)*

(1) Maximum amount of water available to be sold per year; must not exceed amount shown in Table 1, row (d).
(2) During the 50-year analysis period, what percentage of years are water sales expected to occur? For example, if water will only be sold half of the years, enter 0.5.
(3) "Option" fees are sometimes paid by a contracting agency to a selling agency to maintain the right of the contracting agency to buy water whenever needed. Although the water may not be purchased every year, the fee is usually paid every year.

Table 5d—Total water supply benefits

(a)	Water Supply Benefit Value ($/AF) (1)	
(b)	Average Annual Extraction (AF) (2)	
(c)	Total Annual Water Supply Benefits ($) *(a / b)*	
(d)	Discounted Water Supply Benefits ($)(3) *(c* x *15.7)*	

(1) From Tables 5a, 5b, or 5c.
(2) From Table 1.
(3) Discounted water supply benefits for 50-year period with discount rate of 6%. Place in Table 8, "Water supply benefits," row (a).

Table 6—Lift benefits

(a)	Average Annual Net Recharge (AF) (1)	
(b)	Area (Acres) (2)	
(c)	Storage Coefficient	
(d)	Change in Depth to Groundwater (FT) (3)	
(e)	Pumping Costs ($/AF/FT)	
(f)	Volume Pumped (AF/YR) (4)	
(g)	Annual Lift Benefit ($) (6) *(d)* x *(e)* x *(f)*	
(h)	Discounted Lift Benefits ($) (6) *(g)* x *233*	

(1) From Table 1.
(2) Area overlying project groundwater basin.
(3) Equal to: (1/storage coefficient) x (average annual net recharge) x (1/area)
(4) Volume pumped by all groundwater users overlying basin. Exclude in-lieu recharge from project.
(5) Equal to: (pumping costs) x (volume pumped) x (change in depth)
(6) Annual lift benefit x 233. This is the discounted lift benefits for 50-year period with discount rate of 6 percent. Place in Table 8, Lift Benefits, row (b). The 233 factor accounts for the accumulation of annual net recharge over time as well as the discounting of the accumulated net recharge.

Table 7—Avoided pumping costs *(in-lieu recharge)*

(a)	Average Annual In-Lieu Recharge (AF) (1)	
(b)	Depth to Groundwater (FT)	
(c)	Pumping Costs ($/AF/FT)	
(d)	Average Annual Avoided Pumping Costs (2) *(a x b x c)*	
(e)	Discounted Avoided Pumping Costs ($) (3) *(d x 15.7)*	

(1) From Table 1.
(2) Equal to: (in-lieu recharge) x (depth to groundwater) x (pumping costs).
(3) Average annual avoided pumping costs x 15.7. Results in discounted avoided pumping costs for 50-year period with discount rate of 6 percent. Place in Table 8, Avoided Pumping Costs, row (c).

Table 8—Benefit/cost ratio

(a)	Discounted Water Supply Benefits (1)	
(b)	Discounted Lift Benefits (2)	
(c)	Discounted Avoided Pumping Costs (3)	
(d)	Total Discounted Project Benefits ($) *(a + b + c)*	
(e)	Total Discounted Project Costs ($) (4)	
(f)	Benefit/Cost Ratio *(d / e)*	

(1) From Table 5d, row (d).
(2) From Table 6, row (h).
(3) From Table 7, row (e).
(4) From Table 4, column (c).

Appendix IV

Sample resolution

Resolution No. _____

Resolved by the _____
(Governing body, city council, or other)

of the _____
(Agency, city, county, or other)

that pursuant and subject to all of the terms and provisions of the Safe, Clean, Reliable Water Supply Act and amendments thereto, application by this _____ be made to the California Department of Water
(Agency, city, county, or other)

Resources to obtain a groundwater recharge project construction loan.

The _____ of the
(Presiding officer, president, city manager, or other official)

_____ is hereby authorized and directed to
(Agency, city, county, or other)

prepare the necessary data, make investigations, sign, and file such application with the California Department of Water Resources.

Passed and adopted at a regular meeting of the _____
(Board of Directors, Supervisors, etc.)

of the _____
(Agency, city, county, or other)

on _____ .
(Date)

affix official seal here

Authorized Signature _____

Printed Name _____

Title _____

Clerk/Secretary _____

Appendix V

Environmental impact checklist

Evaluation of environmental impacts:

1) A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved *(e.g., the project falls outside a fault rupture zone)*. A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards *(e.g., the project will not expose sensitive receptors to pollutants, based on a project specific screening analysis)*.

2) All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

3) "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect is significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

4) "Negative Declaration: Potentially Significant Unless Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level *(mitigation measures from Section XVII, "Earlier Analysis," may be cross-referenced)*.

5) Earlier analysis may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). Earlier analyses are discussed in Section XVII at the end of the checklist.

6) Lead agencies are encouraged to incorporate into the checklist references to inform sources for potential impacts *(e.g., general plans, zoning ordinances)*. Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated. A source list with numbered items should be attached; reference the applicable numbers within the parentheses in the checklist. Other sources used or individuals contacted should also be cited in the discussion.

ENVIRONMENTAL IMPACT CHECKLIST:

	Potentially Significant Impact	*Potentially Significant Unless Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
I. LAND USE AND PLANNING. *Would the proposal:*				
a) conflict with general plan designation or zoning? (source #:)	☐	☐	☐	☐
b) conflict with applicable environmental plans or policies adopted by agencies with jurisdiction over the project? ( )	☐	☐	☐	☐
c) be incompatible with existing land use in the vicinity? ( )	☐	☐	☐	☐
d) affect agricultural resources or operations (e.g., impacts to soils or farmlands, or impacts from incompatible land uses)? ( )	☐	☐	☐	☐
e) disrupt or divide the physical arrangement of an established community (including a low-income or minority community)? ( )	☐	☐	☐	☐
II. POPULATION AND HOUSING. *Would the proposal:*				
a) cumulatively exceed official regional or local population projections? ( )	☐	☐	☐	☐
b) induce substantial growth in an area either directly or indirectly (e.g., through projects in an undeveloped area or extension of major infrastructure)? ( )	☐	☐	☐	☐
c) displace existing housing, especially affordable housing? ( )	☐	☐	☐	☐
III. GEOLOGIC PROBLEMS. *Would the proposal result in or expose people to potential impacts involving:*				
a) fault rupture? ( )	☐	☐	☐	☐
b) seismic ground shaking? ( )	☐	☐	☐	☐
c) seismic ground failure, including liquefaction? ( )	☐	☐	☐	☐
d) seiche, tsunami, or volcanic hazard? ( )	☐	☐	☐	☐
e) landslides or mudflows? ( )	☐	☐	☐	☐
f) erosion, changes in topography or unstable soil conditions from excavation, grading, or fill? ( )	☐	☐	☐	☐
g) subsidence of land? ( )	☐	☐	☐	☐
h) expansive soils? ( )	☐	☐	☐	☐
i) unique geologic or physical features? ( )	☐	☐	☐	☐
IV. WATER. *Would the proposal result in:*				
a) changes in absorption rates, drainage patterns, or the rate and amount of surface runoff? ( )	☐	☐	☐	☐
b) exposure of people or property to water-related hazards such as flooding? ( )	☐	☐	☐	☐
c) discharge into surface waters or other alteration of surface water quality (e.g., temperature, dissolved oxygen or turbidity? ( )	☐	☐	☐	☐
d) changes in the amount of surface water in any water body? ( )	☐	☐	☐	☐

ENVIRONMENTAL IMPACT CHECKLIST: (continued)

	Potentially Significant Impact	*Potentially Significant Unless Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
e) changes in currents, or the course of direction of water movements? ( )	☐	☐	☐	☐
f) change in the quantity of ground waters, either through direct additions or withdrawals, or through interception of an aquifer by cuts or excavations or through substantial loss of groundwater recharge capability? ( )	☐	☐	☐	☐
g) altered direction of rate of flow of groundwater? ( )	☐	☐	☐	☐
h) impacts to groundwater quality? ( )	☐	☐	☐	☐
i) substantial reduction in the amount of groundwater otherwise available for public water supplies? ( )	☐	☐	☐	☐
V. AIR QUALITY. *Would the proposal:*				
a) violate any air quality standard or contribute to an existing or projected air quality violation? ( )	☐	☐	☐	☐
b) expose sensitive receptors to pollutants? ( )	☐	☐	☐	☐
c) alter air movement, moisture, or temperature, or cause any change in climate? ( )	☐	☐	☐	☐
d) create objectionable odors? ( )	☐	☐	☐	☐
VI. TRANSPORTATION/CIRCULATION. *Would the proposal result in:*				
a) increased vehicle trips or traffic congestion? ( )	☐	☐	☐	☐
b) hazards to safety from design features (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)? ( )	☐	☐	☐	☐
c) inadequate emergency access or access to nearby uses? ( )	☐	☐	☐	☐
d) insufficient parking capacity onsite or offsite? ( )	☐	☐	☐	☐
e) hazards or barriers for pedestrians or bicyclists? ( )	☐	☐	☐	☐
f) conflicts with adopted policies supporting alternative transportation (e.g., bus turnouts, bicycle racks)? ( )	☐	☐	☐	☐
g) rail, waterborne, or air traffic impacts? ( )	☐	☐	☐	☐
VII. BIOLOGICAL RESOURCES. *Would the proposal result in impacts to:*				
a) endangered, threatened, or rare species or their habitats (including but not limited to plants, fish, insects, animals, and birds)? ( )	☐	☐	☐	☐
b) locally designated species (e.g., heritage trees)? ( )	☐	☐	☐	☐
c) locally designated natural communities (e.g., oak forest, coastal habitat, etc.)? ( )	☐	☐	☐	☐

ENVIRONMENTAL IMPACT CHECKLIST: (continued)	*Potentially Significant Impact*	*Potentially Significant Unless Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
d) wetland habitat (e.g., marsh, riparian, and vernal pool)? ( )	☐	☐	☐	☐
d) wildlife dispersal or migration corridors? ( )	☐	☐	☐	☐
VIII. ENERGY AND MINERAL RESOURCES. *Would the proposal:*				
a) conflict with adopted energy conservation plans? ( )	☐	☐	☐	☐
b) use nonrenewable resources in a wasteful and inefficient manner? ( )	☐	☐	☐	☐
c) result in the loss of availability of a known mineral resource that would be of future value to the region and the residents of the State? ( )	☐	☐	☐	☐
IX. HAZARDS. *Would the proposal involve:*				
a) a risk of accidental explosion or release of hazardous substances (including, but not limited to, oil, pesticides, chemicals, or radiation)? ( )	☐	☐	☐	☐
b) possible interference with an emergency response plan or emergency evacuation plan? ( )	☐	☐	☐	☐
c) the creation of any health hazard or potential health hazard? ( )	☐	☐	☐	☐
d) exposure of people to existing sources of potential health hazards? ( )	☐	☐	☐	☐
e) increased fire hazard in areas with flammable brush, grass, or trees? ( )	☐	☐	☐	☐
X. NOISE. *Would the proposal result in:*				
a) increases in existing noise levels? ( )	☐	☐	☐	☐
b) exposure of people to severe noise levels? ( )	☐	☐	☐	☐
XI. PUBLIC SERVICES. *Would the proposal have an effect upon, or result in a need for new or altered government services in any of the following areas:*				
a) fire protection? ( )	☐	☐	☐	☐
b) police protection? ( )	☐	☐	☐	☐
c) schools? ( )	☐	☐	☐	☐
d) maintenance of public facilities, including roads? ( )	☐	☐	☐	☐
e) other government services? ( )	☐	☐	☐	☐
XII. UTILITIES AND SERVICE SYSTEMS. *Would the proposal result in a need for new systems or supplies, or substantial alterations to the following utilities:*				
a) power or natural gas? ( )	☐	☐	☐	☐
b) communications systems? ( )	☐	☐	☐	☐
c) local or regional water treatment or distribution facilities? ( )	☐	☐	☐	☐

ENVIRONMENTAL IMPACT CHECKLIST: (continued)

	Potentially Significant Impact	*Potentially Significant Unless Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
d) sewer or septic tanks? ( )	☐	☐	☐	☐
e) storm water drainage? ( )	☐	☐	☐	☐
f) solid waste disposal? ( )	☐	☐	☐	☐
g) local or regional water supplies? ( )	☐	☐	☐	☐
XIII. AESTHETICS. *Would the proposal:*				
a) affect a scenic vista or scenic highway? ( )	☐	☐	☐	☐
b) have a demonstrable negative aesthetic effect? ( )	☐	☐	☐	☐
c) create light or glare? ( )	☐	☐	☐	☐
XIV. CULTURAL RESOURCES. *Would the proposal:*				
a) disturb paleontological resources? ( )	☐	☐	☐	☐
b) disturb archaeological resources? ( )	☐	☐	☐	☐
c) have the potential to cause a physical change which would affect unique ethnic cultural values? ( )	☐	☐	☐	☐
d) restrict existing religious or sacred uses within the potential impact area? ( )	☐	☐	☐	☐
XV. RECREATION. *Would the proposal:*				
a) increase the demand for neighborhood or regional parks or other recreational facilities? ( )	☐	☐	☐	☐
b) affect existing recreational opportunities? ( )	☐	☐	☐	☐
XVI. MANDATORY FINDINGS OF SIGNIFICANCE.				
a) Does the project have the potential to degrade the quality of the environmental, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☐	☐	☐
b) Does the project have the potential to achieve short-term, to the disadvantage of long-term, environmental goals?	☐	☐	☐	☐
c) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	☐	☐	☐	☐

ENVIRONMENTAL IMPACT CHECKLIST: (continued)

	Potentially Significant Impact	*Potentially Significant Unless Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
d) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☐	☐

XVII. EARLIER ANALYSIS.

Earlier analysis may be used, where pursuant to the tiering, program EIR, or other CEQA process, one or more effects have been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a discussion should identify the following on attached sheets:

a) **Earlier analyses used.** Identify earlier analyses and state where they are available for review.

b) **Impacts adequately addressed.** Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.

c) **Mitigation measures.** For effects that are "Less and Significant with Mitigation Incorporated," describe the mitigation measures which are incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

Authority: Public Resources Code Sections 21083 and 21087.
Reference: Public Resources Code Sections 21080(c), 21080.1, 21083, 21083.3, 21093, 21094, 21151; *Sunstrum v. County of Mendocino, 202 Cal.App.3d 296 (1988); Leonoff v. Monterey Board of Supervisors, 222 Cal.Ap.3d 1337 (1990).*

Appendix VI

Permit checklist

Consider whether any of the permits listed in this Appendix are needed for construction of your project. Discuss in Part G on pages 34 and 35. Note: an asterisk (*) indicates that you must obtain these permits, if applicable, prior to contract execution.

Type I: Is the project located in the areas listed?

Geographic Area	Agency	Permit
From 3 miles offshore to 1,000 yards inland	Coastal Commission	Coastal Development Permit
San Francisco, San Pablo, and Suisun bays from high water to 100 feet inland	San Francisco Bay Conservation and Development Commission	Development Permit
Suisun Marsh	San Francisco Bay Conservation and Development Commission	Marsh Development Permit
Lake Tahoe watershed	Tahoe Regional Planning Agency	Development Permit
Floodways in the Central Valley	The Reclamation Board	Encroachment Permit
*Navigable waterways or streams affecting navigable waterways	U.S. Army Corps of Engineers	Section 10 Permit
*Wetlands, including coastal and inland waters, lakes	U.S. Army Corps of Engineers	Section 404 Permit for disposal of dredged material or placement of any fill material into wetlands, lakes, rivers or tributaries
	Regional Water Quality Control Board	Section 401 Certification
*Wild and scenic rivers	The Resources Agency	Approval of diversions; Finding of Compatibility

Type II: Does the project affect any of the resources listed?

Resource	Agency	Permit
Air	Air Pollution Control District	Authority to Construct and Permit to Operate for Activities emitting pollutants to the atmosphere
*Fish and wildlife habitat	U.S. Fish and Wildlife Service	Fish and Wildlife Agreements
	Department of Fish and Game	Streambed or Lake Alteration Agreements for Activities in streams or lakes and channels, and crossing spawning gravel protection
	Department of Fish and Game	Fish and Wildlife Agreements
*Water rights	State Water Resources Control Board, Regional Boards	Permit to Appropriate and State of Diversion and Use for Activities diverting surface water not previously appropriated
*Water quality	State Water Resources Control Board, Regional Boards	National Pollutant Discharge Permit or Waste Discharge Requirements for discharges to surface water; Water Reclamation Requirements
*Wetlands, including coastal and inland waters, lakes, rivers	U.S. Army Corps of Engineers	Section 404 Permit for disposal of dredged material or placement of any fill material into wetlands, lakes, rivers, or tributaries
*Navigable waters and tributaries to them	U.S. Army Corps of Engineers	Section 10 Permit for dredging, filling dock, groins, land jetties or for any obstruction or effect on the capacity of navigable waters
Navigable water and tributaries to them	Federal Energy Regulatory Commission	FERC License

Type II: Does the project affect any of the resources listed? *(continued)*

Resource	Agency	Permit
Beds of navigable waters	State Lands Commission	Land Use Lease for encroachments and docks
*Endangered species	U.S. Fish and Wildlife Service	Section 10a Incidental Take Permit
	Department of Fish and Game	Incidental Take Permit
Drinking water	Department of Health Services	Title 22 Drinking Water Standards

Type III: Does the project involve any of the following activites?

Activity	Agency	Permit
Power plants and transmission lines	California Energy Commission	Notice of Intention and Application for Certification
Generation of electrical power	Federal Energy Regulatory Commission	FERC Permit
Conversion of timberland to other uses	Department of Forestry	Timberland Conversion Permit
Cancellation of a Williamson Act Open Space	The Resources Agency	Approval of the Waiver of a Contract Cancellation Fee
Bridge construction	U.S. Coast Guard	Permit for bridges and causeways over navigable waters
Mineral prospecting and extraction of State lands	State Lands Commission	Prospecting Permit and Extraction Lease
Oil or gas well	Department of Conservation, Division of Oil and Gas	Oil or Gas Well Permit
Geothermal well	Department of Conservation, Division of Oil and Gas	Geothermal Well Permit

Type III: Does the project involve any of the following activites? *(continued)*

Activity	Agency	Permit
Geothermal prospecting and development on State lands	State Lands Commission	Geothermal Prospecting Permit and Extraction Lease
Encroachment on or across a State highway	Department of Transporation	Encroachment Permit; Utility Encroachment Permit
Construction, alteration, maintenance, operation, and removal of dams or reservoirs	Department of Water Resources, Division of Safety of Dams	Approval of Plans
Construction or alteration of dams	Federal Energy Regulatory Commission	FERC License
Dredging	Department of Fish and Game	Standard or Special Suction
Removal of sand, gravel, and dredge spoils from State-owned lands	State Lands Commission	Grant or Privilege
*Dredging or placement of fill or other materials or structure in wetlands	U.S. Army Corps of Engineers	404 Permit
	Regional Water Quality Control Board	401 Certification
*Water diversion from a State wild or scenic river	The Resources Agency	Determination of Need and No Adverse Effect
Surface mining	City or County	Reclamation Plan

Type IV: Property rights

Considerations

- Who owns or controls the land? *(Private owner, lessee, public agency owner?)*
- Does the loan applicant have the landowner's permission?